EPI-LOG

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Tuberculosis in King County, 2002

During 2002, 158 cases of tuberculosis were reported in King County. This represents a 52% increase since 1999—the third successive year of increasing cases. The last time King County reported more than 155 cases was in 1969, when there were 178 cases. The steady decrease in case numbers that was seen through the 1970s and early 1980s clearly has ended as we enter the new century.

The greatest risk factor for developing active tuberculosis in King County continues to be foreign birth, with 116 (73%) cases occurring among foreign-born persons. The recent trend of increasing numbers of cases occurring among African immigrants appears to leveling off, though the total number, and proportion of cases who were born in Africa remains high.[1] In 2002, 28 cases (18% of the total and 24% of foreign-born) were born in Africa, including 14 born in Somalia and 9 born in Ethiopia. Southeast Asia is the region where the next highest numbers of cases were born, with 17 cases from Vietnam and 5 from Cambodia. The following countries of birth each represent greater than 3% of total cases: Philippines (17 cases), India (11 cases), Mexico (9 cases) and China (5 cases). Nationally, the proportion of cases that are foreign-born reached 51% during 2002, exceeding the proportion of US-born cases for the first time, and following the King County trend of the past decade.[2]

The second biggest risk factor for tuberculosis in King County is homelessness. During 2002, King County experienced a dramatic new outbreak of tuberculosis among homeless persons, with a total of 29 cases, twice the usual recent numbers of 12 to 15 homeless cases per year. Molecular strain typing has confirmed that recent transmission of a single strain of *Mycobacterium tuberculosis* accounts for this important and continuing outbreak. Of 25 specimens from homeless cases that received strain typing, 15 (60%) belonged to the same strain, demonstrating an outbreak likely to have originated from a single source case. Compared to cases with non-outbreak isolates, outbreak associated cases were disproportionately Native American (66% vs. 10%) and HIV infected (40% vs. 22%). The TB Program was fortunate to have received major support in responding to and in controlling this outbreak from the Washington State Department of Health (DOH), and from the Centers for Disease Control and Prevention (CDC). Public Health also significantly increased its support for the TB program in order to control this outbreak, from which new cases are expected to occur for at least two more years. Generous local, state, and federal support for outbreak control continues in 2003.

The third important local risk factor for tuberculosis is HIV infection. Of 112 cases tested for HIV infection, 11 (10%; 7% of the total number of cases) tested positive. HIV infection is particularly important because it greatly increases the likelihood that a person infected with TB will develop active tuberculosis. TB and HIV co-infections require careful coordination between treatment of the two conditions because HIV infection increases the complexity of TB diagnosis and treatment, and TB treatment complicates the treatment of HIV infection. Furthermore, contacts of HIV infected TB cases may be more likely to be HIV infected, and, therefore, have greater vulnerability to TB.

Drug resistance, one marker of the impact of tuberculosis on a community, and the effectiveness of the TB control program, remains fairly constant in King County. During 2002, 12% of specimens from culture-positive cases were resistant to isoniazid, and only one isolate had resistance to both isoniazid and rifampin, defining "multidrug resistant (MDR) tuberculosis". The low MDR rate continues to suggest that the initial drug selection and treatment compliance failures that have caused MDR TB in other jurisdictions are not occurring in King County. Isoniazid and rifampin are by far the superior drugs in tuberculosis treatment. The second- and third-line drugs required for treating MDR TB are less effective, more expensive, and have more side effects, necessitating much longer and more complicated treatment, in comparison to drug-susceptible TB. Isoniazid-resistance (with susceptibility to rifampin) is the most common form of drug-resistance. Fortunately, it is only a little more complicated to treat, in comparison to fully susceptible TB. The main impact of isoniazid resistance is that, in a community with a greater than 4% rate of isoniazid resistance among new cases, most cases must be started on a treatment regimen that includes four drugs – usually isoniazid, rifampin, pyrazinamide, and ethambutol, in order to prevent the development of MDR TB. An initial regimen of four drugs covers the possibility of resistance to one or two drugs during the one or two month interval after specimen collection that is required to accomplish sensitivity testing.

The TB program has responded aggressively in response to epidemiological trends in recent years, and to direction from the department to seek outside funding for program development, resulting in successful competition for federal and private grants and contracts. The program participates in the two major CDC sponsored international research consortia: Tuberculosis Trials Consortium (TBTC, 1999-2009) and Tuberculosis Epidemiologic Studies Consortium (TBESC, 2001 – 2011), as well as the CDC-sponsored three-year, three-site study of contact investigations among foreign-born persons. During 2002, within the TBESC, the program was awarded a two-year contract to measure the prevalence of latent TB infection among homeless persons, and, concurrently, to evaluate a

new gamma-interferon-based test of latent TB infection (QuantiFERON®). The program also receives CDC funding for Directly Observed Therapy outreach, and for developing partnerships with community clinics for treatment of latent TB infection. Grants from three private foundations helped to develop a new culturally, and community-based approach to targeted testing, and treatment of latent TB infection in newly arrived refugees and immigrants that was highly successful and is being emulated nationally.[3] During 2001 and 2002 the program also developed a new partnership with a local laboratory, Seattle Biomedical Research Institute (SBRI), for strain typing of TB isolates, an important new tool for evaluating patterns of TB transmission.

Managing, controlling and learning from the present homeless TB outbreak is one of the pressing challenges for the coming year. Core TB control functions, however, also must be maintained and strengthened. In particular, with foreign-born cases continuing to comprise the largest risk group, new approaches and research must be pursued, and broad-based community strategies involving health partners, educators and the affected communities must be expanded.

Update on TB Outbreak Among the Homeless in King County

From January through May of 2003, 19 of 54 counted cases (35%) are homeless. Aggressive case finding among identified contacts of 2002 cases, and collaboration with several institutions outside of Public Health, has resulted in over 300, of approximately 500 identified close contacts, receiving a battery of five tests: tuberculin skin testing, chest x-ray, sputum collection, medical history, and HIV testing. These efforts have resulted in early diagnosis of TB in at least 9 of the identified contacts. All but one of the 2003 homeless cases were identified during the first four months of the year. Individuals with latent TB infection (LTBI), in whom active TB disease has been thoroughly ruled out, are now receiving treatment (mostly directly observed) for LTBI. Epidemiologic analysis of new cases, and efforts to complete testing and treatment of identified contacts continue. Preliminary analysis suggests that the 2003 homeless cases are much less infectious than those diagnosed during 2002, having been diagnosed much more early in their course of disease, and suggesting that an intensive and sustained Public Health effort is helping to bring the outbreak under control. Further information about Public Health's TB Control Program, tuberculosis in Seattle & King County, tuberculosis in general, and useful links to national and international TB resources can be found in the TB Program's web page, at:

http://www.metrokc.gov/health/tb/.

[1] CDC. Increase in African Immigrants and Refugees with Tuberculosis ---Seattle-King County, Washington, 1998—2001. MMWR 2002;51(39):882-884

[2] CDC. Trends in Tuberculosis Morbidity --- United States, 1992—2002. MMWR 2003;52:217-222.

[3] Goldberg SV, Wallace J, Jackson C, Nolan CM, Chaulk P. Cultural Case Management of Latent Tuberculosis Infection. Int J Tuberc Lung Dis. In press 2003.

CDC 2003 Immunization Update

Register now for the CDC 2003 Immunization Update scheduled for Thursday, August 21st from 9 am - 11:30 am. This live satellite broadcast, held at Overlake Hospital Medical Center, will provide up-to-date information, including influenza vaccine (including recommendations for the use of the new live attenuated intranasal vaccine), hepatitis B vaccine, recommendations for the use of the new pediatric combination vaccines, pneumococcal conjugate vaccine, an update on the smallpox vaccination program, and an update on the global polio eradication. Continuing education credit will be offered for a variety of professions. For additional information, contact Maybelle Tamura at: (206) 296-5252, or download a registration form at:

http://www.metrokc.gov/health/immunization/providers.htm#training

Disease Reporting

AIDS/HIV	(206) 296-4645
STDs	(206) 731-3954
TB	(206) 731-4579
Other Communicable Diseases	(206) 296-4774
Automated 24-hr reporting line for conditions not immediately notifiable	(206) 296-4782

Hotlines:

Communicable Disease	(206) 296-4949
HIV/STD	(206) 205-STDS

***EPI-LOG* Online: www.metrokc.gov/health/providers**

Reported Cases of Selected Diseases, Seattle & King County 2003

	Cases Reported in June		Cases Reported Through June	
	2003	2002	2003	2002
Campylobacteriosis	19	31	109	141
Cryptosporidiosis	5	2	21	7
Chlamydial infections	459	366	2,446	2,134
Enterohemorrhagic *E. coli* (non-O157)	0	0	0	0
***E. coli* O157: H7**	1	1	12	5
Giardiasis	6	7	52	98
Gonorrhea	110	119	715	723
***Haemophilus influenzae* (cases <6 years of age)**	0	0	0	0
Hepatitis A	0	2	15	23
Hepatitis B (acute)	4	5	19	14
Hepatitis B (chronic)	42	50	303	256
Hepatitis C (acute)	0	1	5	7
Hepatitis C (chronic, confirmed/probable)	74	189	510	875
Hepatitis C (chronic, possible)	24	42	130	226
Herpes, genital (primary)	60	71	334	345
HIV and AIDS (includes only AIDS cases not previously reported as HIV)	35	39	226	345
Measles	0	0	0	0
Meningococcal Disease	0	0	3	12
Mumps	0	0	0	0
Pertussis	27	14	120	57
Rubella	0	0	0	2
Rubella, congenital	0	0	0	0
Salmonellosis	24	25	113	87
Shigellosis	6	7	58	26
Syphilis	6	4	41	19
Syphilis, congenital	0	0	0	0
Syphilis, late	5	3	25	20
Tuberculosis	3	15	71	70

The *Epi-Log* is available in alternate formats upon request.